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E1S

## (54) Roof scaffolding

(57) An anti-fall device for operatives working on the roof of a building comprises two frames connected by a hinge. The frames are provided preferably with feet, and each frame rests on a roof section on opposite sides of the ridge of the building. At least one frame is provided with an anti-fall barrier extending upwardly from the frame.

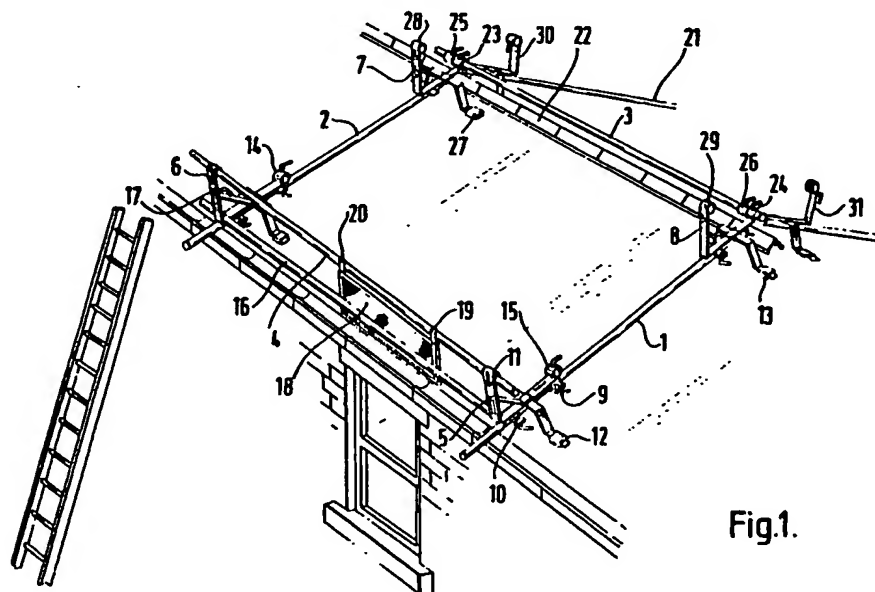


Fig.1.

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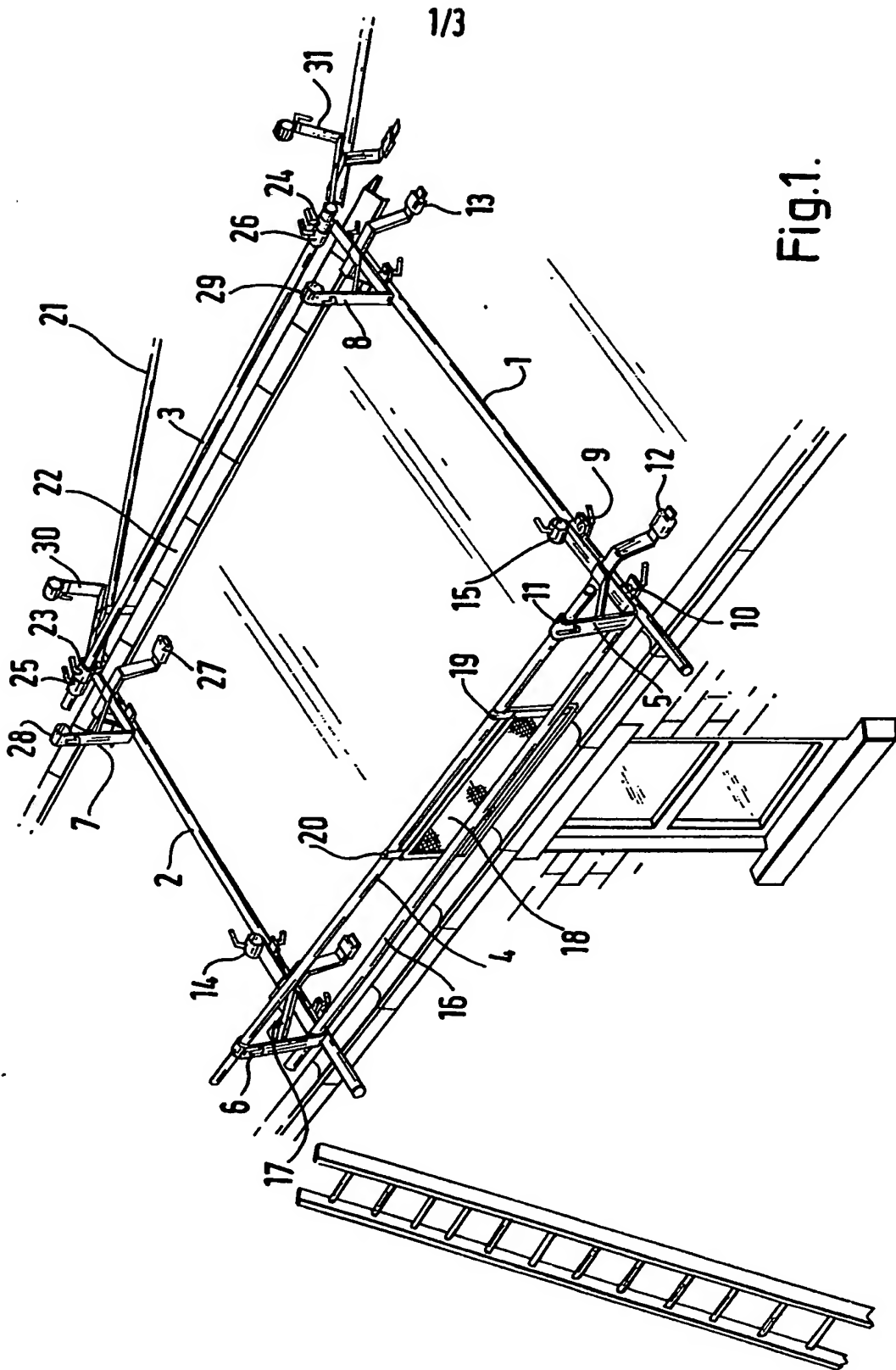
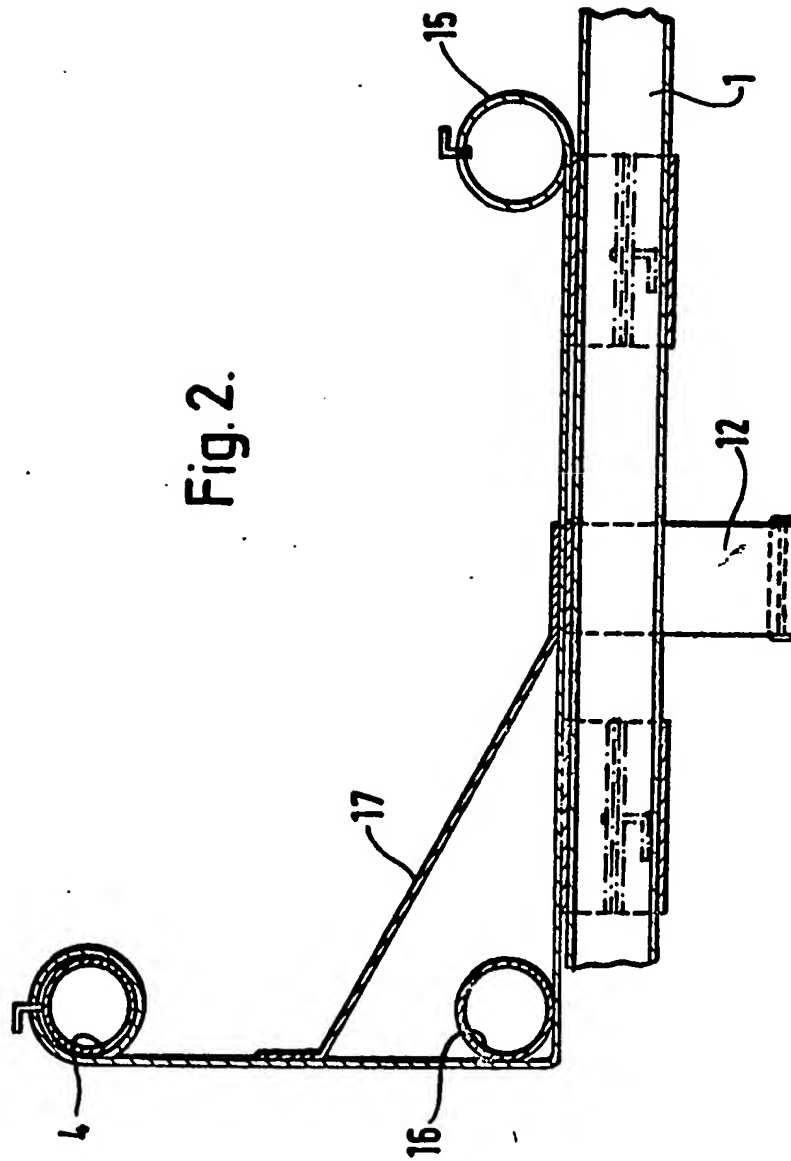


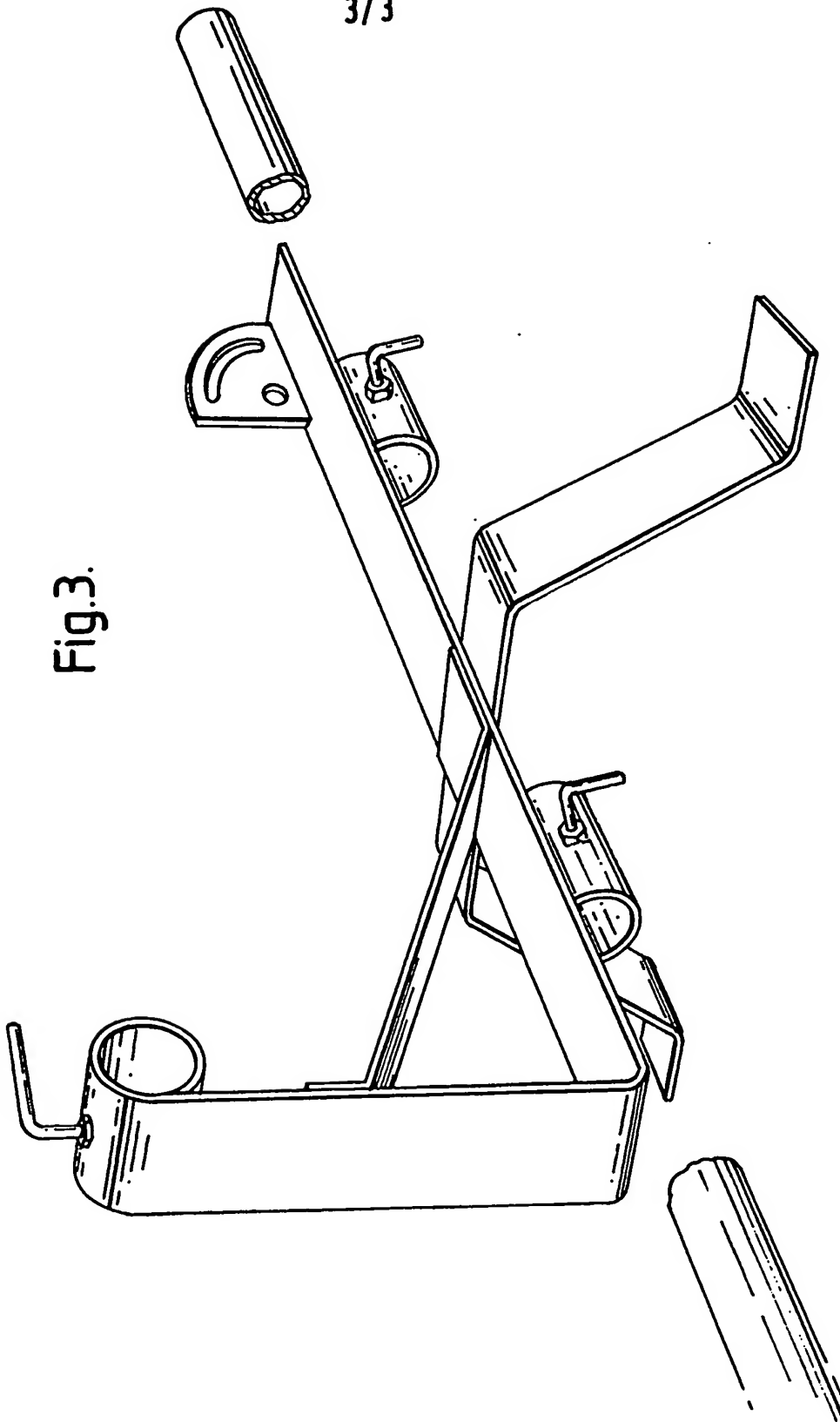
Fig. 2.



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Fig.3.



## SPECIFICATION

### Safety device

5 This invention relates to a safety device to prevent an operative from falling from the roof of a building and to a kit of parts for assembling the device.

The construction and repair of roofs has always provided a fruitful source of accidents due to operatives falling from the roofs during their construction or repair. Consequently various devices and work practices have been developed to improve safety, and these have achieved a measure of success. However in generally they have suffered from a number of defects which has tended to limit their use. For example one safety measure is to resort to the use of scaffolding. However this can be both expensive and time consuming to erect and whilst it can provide a high measure of safety operatives tend to avoid such measures especially when minor repairs to a roof are required. The use of cat walks also helps to prevent accidents. However these suffer from the disadvantage in that whilst they assist in preventing an operative from slipping they cannot stop the downward movement of the operative once he has begun to slip. When this situation arises there is often little an operative can do to prevent his falling from the roof especially if it is covered with slates which are especially smooth and slippery. The purpose of the present invention is to provide a safety device which whilst relatively inexpensive and easy to assemble it nevertheless provides a high measure of safety to an operative with the minimum of inconvenience.

Accordingly this invention provides a safety device comprising two frames connected by a hinge, each of the frames being adapted to rest upon a section of a roof of a building on opposite sides of the ridge of the building and at least one of the frames being provided with a barrier at or near the side of the frame opposed to the side bearing the hinge.

This invention is illustrated by the following drawings in which

Figure 1 is a view in perspective of the invention device.

Figure 2 is a view in vertical section of one of the brackets (Numeral 5) which are used in the invention device illustrated in Fig. 1.

Figure 3 is a view in perspective of an alternative bracket.

In Fig. 1 four tubular members (Numerals 1, 2, 3 and 4) are assembled into a rigid rectangle by securing each tube towards its end in brackets (Numerals 5, 6, 7 and 8) by means of the tube clamps exemplified by Numerals 9, 10 and 11 in both Figs. 1 and 2. The tubular members can conveniently comprise lengths of steel or aluminium scaffolding tubes. Members 1 and 2 should preferably be at least as long as the rafters of the

roof and are spaced apart to any extent determined by circumstances. For example if a chimney is to be built or repaired members 1 and 2 should be spaced apart sufficiently to surround the chimney and to provide sufficient working room for the operative. Each of the brackets is provided with a pair of feet exemplified by Numerals 12 and 13 which preferably are covered with rubber treads. If extra strength is required an additional tube member can be secured to the frame by means of the clamps Numerals 14 and 15.

Protection for an operative is provided by a barrier comprising the upper tube member (Numeral 4) a second tube member (Numeral 16) which is slideable laterally on the frame but the movement of which is at right angles to it is prevented largely by a truss member (Numeral 17). Tube members (Numerals 4 and 16) together constitute upper and lower guard rails. The space between is filled by a mesh guard (Numeral 18) which hangs by hooks (Numerals 19 and 20) from the upper guard rail. A single mesh guard can be used to fill the gap. However it is generally more convenient to use short sections of guard e.g. about 3 feet and then hook onto the guard rail a sufficient number of sections as circumstances may require. In use the frame rests upon the roof and it is tilted at an angle corresponding to the pitch of the roof. As a result the mesh guard tends to pivot about the hooks and to rest against the lower guard rail.

The frame described above is connected to a similar frame (Numeral 21) which rests on the roof on the opposite of the ridge (Numeral 22) by means of a hinge comprising tube member (Numeral 3) which constitutes the spindle of the hinge and four tube clamps (Numerals 23, 24, 25 and 26) on brackets (Numerals 7, 8, 30 and 31) present on brackets forming part of the second frame. The invention device can be assembled in different ways. One method is to assemble each frame on the ground. These are then placed on either side of the ridge after which tube clamps (Numerals 23, 24, 25 and 26) are brought into register and tube member or spindle (Numeral 3) is slid into and is made to engage with all four clamps. These are then tightened up so as to lock the structure. In other instances it may be desirable to assemble the whole device on the roof. For extra safety an additional hand rail can be incorporated by sliding a tube member into the two tube clamps (Numerals 28 and 29) which are situated at the top of the two brackets (Numerals 7 and 8). Legs (Numerals 13 and 27) maintain the frame sufficiently clear of the ridge to enable an operative to work in its vicinity. If desired planks can be placed across members Numerals 1 and 2 to provide a platform on which the operative can work and place his materials. Access to the invention device can be gained by tying or hooking the

end of a ladder to the lower guard rail (Numeral 16). It will be seen that if an operative working within the area defined by the four tub members (Numerals 1, 2, 3 and 4) happens to slip down the roof his movement will be prevented by one of the mesh guards which cannot swing outwards because its end cannot pass the lower guard rail.

This invention can be varied in a number of different ways. For example different forms of hinge connections can be used. Thus Fig. 3 illustrates a bracket similar to that shown in Fig. 2 with the difference that it incorporates part of a hinge consisting of a steel quadrant (Numeral 1) bearing a hole and a curved slot. In use this half hinge is paired up with a similar half hinge in the adjacent bracket of a second frame and a bolt is inserted through both the hole and the slot. When the two frames are thus connected and positioned on the roof the structure can be locked by screwing wing nuts tightly onto the bolts.

Scaffolding tubes are usually employed because of their ready availability on building sites. However most rods or tubes can be used provided they have sufficient length and strength.

It will be appreciated that if an operative is working on one side, the frame on the other-side of the ridge is acting merely as a counter-weight or drag anchor to the frame which the operative is using. It is largely to the weight of the second frame that the guard mesh of the first frame is able to arrest the movement of the operative's body should the operative slip. In certain situations therefore the presence of a second frame can be dispensed with so long as the frame which is to be used can be secured by a hinge to an alternative form of support.

It will be seen that the invention device comprises essentially special brackets and guard meshes which have to be made specially for the purposes of implementing the invention. The remaining components are rods or tubes which are freely available. Accordingly the invention device can be made readily to any reasonable size and to be capable of adaptation to any normal roof situation.

#### CLAIMS

1. A safety device comprises two frames connected by a hinge, each of the frames being adapted to rest upon a section of a roof of a building on opposite sides of the ridge of the building, and at least one of the frames being provided with a barrier at or near the edge of the frame opposed to the edge bearing or forming part of a hinge.

2. A safety device according to claim 1 comprising tubular members detachably connected together by brackets.

3. A safety device according to either of claims 1 or 2 provided with feet.

4. A safety device according to any one of

claims 1 to 3 wherein at least one frame is provided with a handrail in addition to the barrier.

5. A safety device substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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